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VOLUME XXXIX JANUARY, 1940 NUMBER 1

OUR CHANGING COASTLINE

A. L. SHALOWITZ
Cartographic Engineer, U. S. Coast and Geodetic Survey

The shore or littoral is the zone where two great physical provinces meet and where changes in the form of the land take place rapidly. It is the end of the visual continent and the beginning of the submerged margin of its seaward extension.

To the lay observer this meeting place of land and sea is but a fascinating playground where elements are unchanging in their relation to each other. Little does he know of the pent-up forces that every incoming wave carries with it, to be released in its relentless work of destruction.

The physiographer and engineer, on the other hand, fully appreciate the impress left by every wind and every wave that beats against an exposed shore. They see in this meeting place not a playground but a battlefield where land and sea are constantly struggling for supremacy and where too often the sea has been the victor.

Coast lines are continually changing; in some localities where accretions have been going on for many years the situation may suddenly be reversed, and for reasons that are undetermined, erosion sets in. In other localities, sand bars or barrier beaches separating shallow lagoons or bays from the open ocean are broken thru during storms, to form inlets of a temporary or permanent nature.

That these shore-line changes are of more than minor importance may be appreciated from the fact that the beach at Fire Island Inlet on the south shore of Long Island has been lengthened four miles in a period of a hundred years. And the same forces have driven Rockaway Point westward an equal amount in a like period of time. Wave lifted and current borne material has extended the north point of Monomoy Island, on the Massachusetts coast, about 3 miles in 60 years, while Fishing Point on the Virginia Coast has moved southward over 4 miles in 66 years, converting an open bight into a natural harbor of refuge.

The United States Coast and Geodetic Survey, whose function it is to survey and chart the coasts of the United States and the waters adjacent thereto has had occasion to observe these changes from surveys extending over a period of more than 100 years.

The South Coast of Long Island

The most spectacular changes in our coastline that have occurred recently, have been those occasioned by the hurricane of

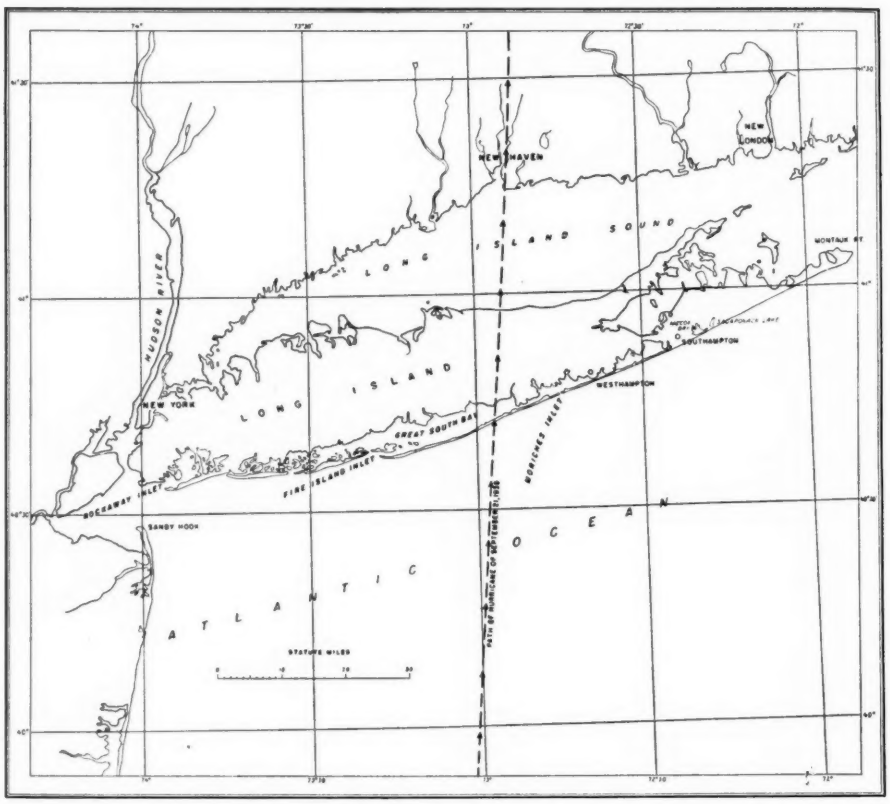

Fig. 1. Showing barrier beaches along south coast of Long Island, N.Y.

Sept. 21, 1938, along the south coast of Long Island, New York. While this storm caused more damage in a few hours than normally occurs over a period of years, it was in reality but a dramatic exaggeration of natural forces going on all the time.

Long Island (Fig. 1), has been referred to as a fragment of the North American continent. Lying off the Atlantic Coast of the United States, it is a part of that eastern coast zone which stretches

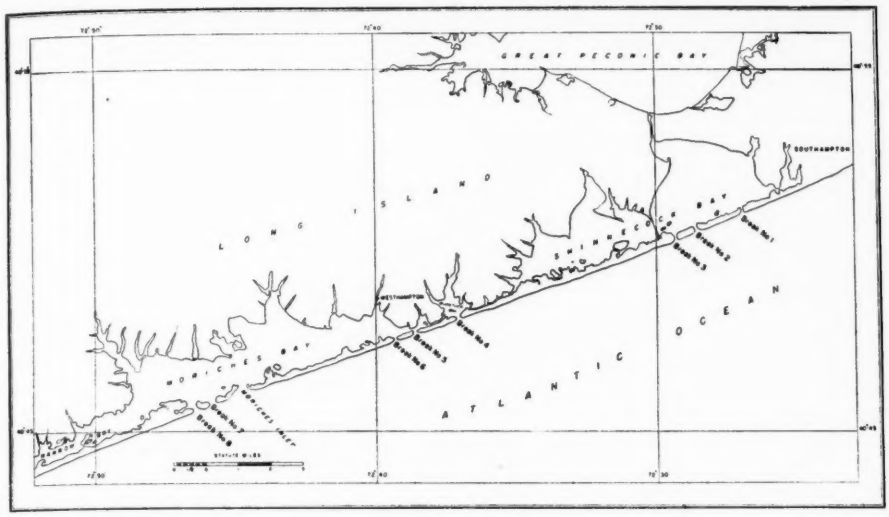

Fig. 2. Showing recent breaks in the barrier beach

back from the water's edge to the ridges of the Appalachians, the transition zone between the two dominant forms of the earth's surface—the land and the sea. The south shore of the island is characteristically different from the north shore. A cordon of sand with few interruptions (prior to recent breaks) stretches from Rockaway Inlet to Southampton, a distance of nearly 90 miles, forming a protective barrier that separates the south bays from the ocean.

These barrier beaches are generally of low elevation and are therefore amenable to the destructive forces to which they are exposed and because of their exposed nature they bear the full brunt of the impact and backwash of storm waves. Where the beaches are fringed with sand dunes they are less vulnerable to attack, except where the dunes have been leveled down or where they are intersected by an occasional transverse glade or slash. It is these low places in the beach that become the lines of least resistance for the breaking waves.

Recent Changes in the Shoreline

During the hurricane of September, 1938, the barrier beach between Southhampton and Fire Island Inlet was severed by eight new inlets (Fig. 2). The extent of the changes in shoreline since the last survey was made in 1933 can be seen from an examination of Fig. 3. The breaks are similarly designated in both figures and their relationship to each other can be studied from Fig. 2.

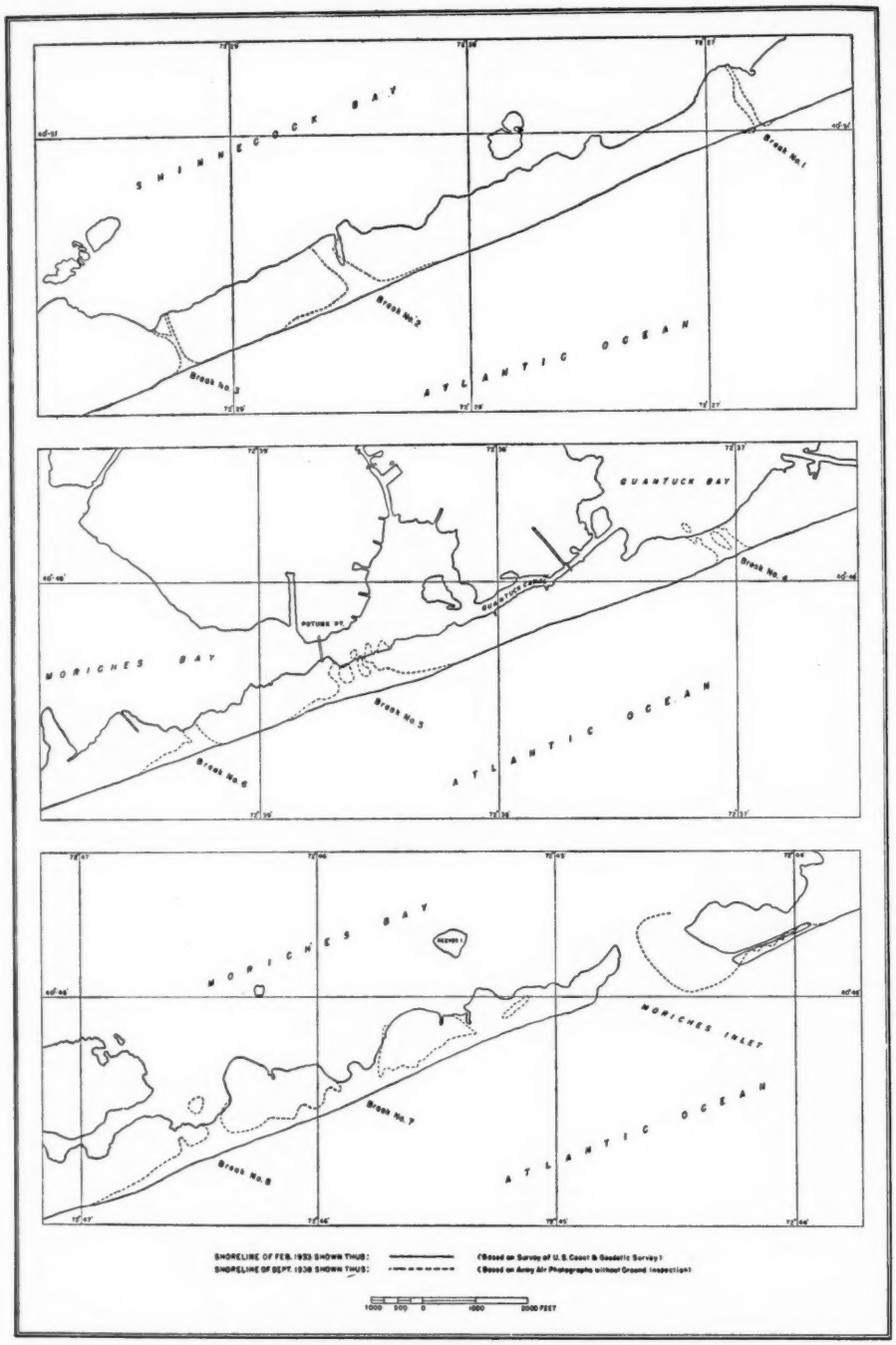

Fig. 3. Shoreline changes, south coast of Long Island, N.Y.

The following summary shows the extent of the breaks and the probable depths in the various inlets as near as could be determined from a study of Army Air Corps photographs taken three days after the storm but with no actual ground inspection:

EXTENT OF NEW INLETS

Break No.	*Breadth*	*Depth*
1	150 feet	Shallow
2	300 "	18½ feet*
3	90 "	Shallow
4	500 "	About 4 feet
5	675 "	Shallow
6	300 "	Uncertain
7	750 "	Shallow
8	300 "	Very deep

* *Engineering News-Record,* Oct. 27, 1938, p. 510.

In addition to the actual breaks in the shoreline considerable recession has taken place in the vicinity of several of the new inlets (see Breaks 5, 6 and 7).

PERMANENCE OF THE NEW INLETS

The question naturally arises, how permanent are such breaks? It is of importance both to the engineer and the physiographer to speculate on their probable future history. While no one can predict with certainty what the condition may be years hence at some particular place along the shore, yet since we are dealing with similar forces we may to a certain extent expect a history comparable to what has occurred in other similar areas along the coast.

Breaks such as described above have occurred from time to time along our coasts and constitute sudden and violent disturbances of the carefully balanced equilibrium which nature seeks to maintain along the shore. The sands which formerly constituted the part of the beach now occupied by the inlet have been deposited promiscuously in the form of shoals and bars. Waves and tidal currents thru the inlet immediately set to work to rearrange these shoals into an orderly pattern, and the inlet adjusts itself to conform to the local conditions at that point. The alongshore movement of sand which formerly continued past the point uninterruptedly, will now be more or less intercepted by the inlet currents and add their accumulation to the amount to be readjusted.

Precluding the intervention of man, the first possibility to consider is that the inlets may close almost as suddenly as they

opened. That has happened to a considerable number of inlets cut by storm waves. If closing does occur it usually takes place promptly. On the other hand, the inlets may not close. If they remain open long enough to establish an equilibrium, then the tendency is for them to become permanent, altho their positions might shift.

MIGRATION OF INLETS

Along many beaches exposed to wave attack inlet migration is a well known phenomenon. If the alongshore current in one direction

Fig. 4. A view of Break No. 2 from the air. This is one of the larger gashes in barrier beach fronting Shinnecock Bay

predominates over that in the other, the inlet will migrate in the direction of the dominant current. Debris brought by the currents will be deposited on one side of the inlet with a tendency to narrow the inlet, while the transverse currents thru the inlet cause an erosion of the other side. An excess of deposition on one side accompanied by erosion on the other results in a lateral migration of the inlet along the bar in the direction of the dominant current.

The south shore of Long Island trends approximately east and west; that of the northern part of New Jersey roughly north and south. Any vigorous wave attack against either shore, therefore,

comes predominantly from the southeastward. In consequence there is an abnormal tendency towards a westward growth of beaches and a westward migration of inlets on the Long Island shore. Great South Beach, Jones Beach, Long and Atlantic Beaches and Rockaway Beach (Fig. 1), all furnish conclusive evidence of this tendency.

If the present new inlets on Fire Island remain open we should expect them to repeat the history of their predecessors in this locality. However, some years may elapse before this migration be-

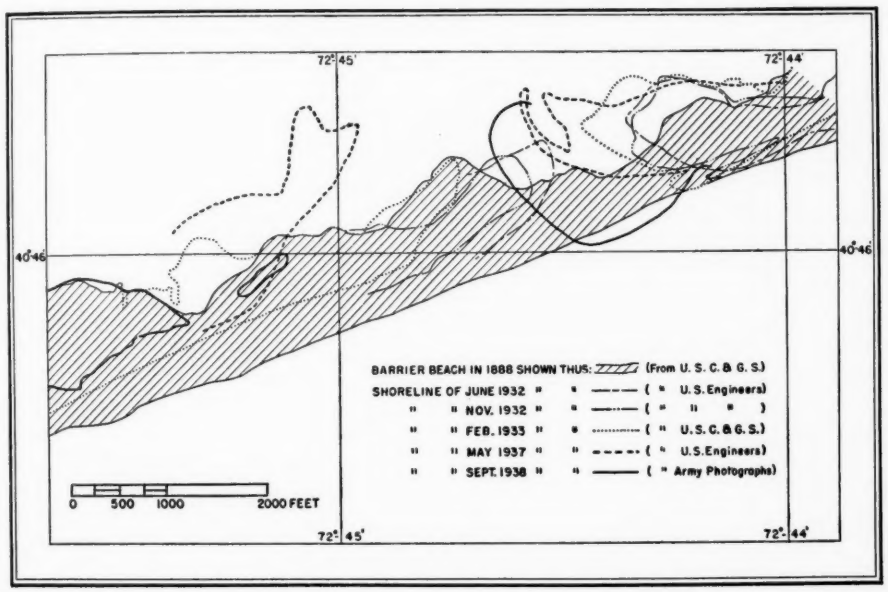
72° 45'
72° 44'
40° 46'
40° 46'
BARRIER BEACH IN 1888 SHOWN THUS: (From U. S. C. & G. S.)
SHORELINE OF JUNE 1932 " " (" U. S. Engineers)
" " NOV. 1932 " " (" " ")
" " FEB. 1933 " " (" U. S. C. & G. S.)
" " MAY 1937 " " (" U. S. Engineers)
" " SEPT. 1938 " " (" Army Photographs)
0 500 1000 2000 FEET
72° 45'
72° 44'

Fig. 5. Evolution of Moriches Inlet, Long Island, N.Y.

gins, for observation has shown that before the longshore currents begin the process of building up the beach on the up-current side of the inlets, an adjustment to the new conditions takes place. The inlets, in other words, must first establish their regimen before migration begins.

THE CASE OF MORICHES INLET, L.I.

Moriches Inlet (Figs. 2, 5 and 6) which broke thru the barrier beach in February, 1931, illustrates both the evolution of an inlet cut by storm waves and the phenomenon of inlet migration. Between the time of its opening and June, 1932, the width of the inlet fluctuated between 600 and 1050 feet, now widening, now narrowing, but

no definite tendency towards migration was as yet in evidence. In November, 1932, a storm severed the bar in several additional places, but these openings were closed soon afterward. However, Moriches Inlet remained open and was widened from about 750 feet to about 1100 feet. Altho the easterly shore showed stability the westerly shore had eroded considerably. By February, 1933, a definite migratory tendency was apparent. The inlet had widened to 1300 feet and its axis had moved westward 550 feet. Between February, 1933, and May, 1937, the easterly point of the inlet had worked westward about

Fig. 6. Moriches Inlet shown to the right and Break No. 7 to the left

600 feet and the westerly point about 1000 feet in a northwesterly direction, widening the inlet to 1650 feet and moving the axis of the inlet an additional 750 feet westward, making a total westward migration since June, 1932, of 1500 feet or about 300 feet per year.

The air photographs of September 24, 1938, taken three days after the recent hurricane show the easterly point of the inlet to have moved approximately 450 feet to the southwestward and show that about 2400 feet of the former westerly spit to be covered with water. Except for a small island near the western side of the inlet

the total width of the inlet is now 3600 feet or more than twice its width a year and a half ago.

Thus far the behavior of Moriches Inlet seems to bear out the prediction made in 1931 by the late Admiral Patton, Director of the Coast and Geodetic Survey, in an article* published shortly after Moriches Inlet broke thru, and in which he said:

There is no ground for expecting Moriches Inlet to prove an exception to the rule. If the inlet does not reclose, and if man does not intervene, we can reasonably expect, during the next few years, an accelerated erosion of the beach for some distance west of the opening, and that in due time the inlet will begin a westward migration.

WHY RESURVEYS ARE NECESSARY

Changes in shoreline as have been discussed emphasize the importance of periodic resurveys in such areas. As long as the winds blow and the currents flow and the tides rise and fall, so long will such resurveys be necessary. But it is not sufficient merely to know that changes have taken place along a particular section of the coast line; what is more important for a modern chart producing agency is that the maritime public be furnished with a record of these changes thru the instrumentalities of its charts and maps.

And while the visible effects on land are being produced others even more important to the navigator are going on beneath the surface of the water. Bars and channels shift, new shoals form, old ones disappear, and resurveys thus become necessary. The safety of navigation depends upon an accurate representation of these changes on the published charts.

Resurveys not only serve the needs of the navigator, but also furnish a wealth of material for the study of the recent evolution of our shoreline which enables the student of shore forms to draw conclusions regarding its past history. Nature's processes in forming the coastline are complex depending upon the configuration of a locality and the activity of the elements. By correlating changes in shoreline with the action and interaction of winds, waves, tides and currents, laws may be discovered controlling the operation of these forces, thus facilitating the interpretation of shore forms in other regions.

To the student of geology, the submarine patterns along our continental shelves and slopes, as unfolded by hydrographic surveys, add to his knowledge of earth history.

*Moriches Inlet: A Problem in Beach Evolution. *Geographical Review,* October, 1931.

In the field of coast erosion and protection, a record of successive changes brought about by storm and wave action contributes to our knowledge of the hidden evolution of the shore, the extent of the various attacking forces, and the resisting power which the shore offers. The history of beach evolution during the past century along certain sections of our coast has been studied from the records of the United States Coast and Geodetic Survey and the engineer has found them indispensible in determining the character of the changes which his structures must control; whether it be in the field of harbor improvement, channel development and maintenance, or shore protection.

UNIT TEACHING MATERIAL: THE POLAR REGIONS

SISTER M. BERNETTA
The Motherhouse of Dominican Sisters, Grand Rapids, Michigan

The polar regions are being more and more thoroly investigated in the interests of aviation and meteorological science. A recent visit from Father Hubbard, the great northern explorer, stimulated this unit.

I. OBJECTIVES

A. To help the children respect and understand other people and their adjustment to their environment.
B. To give an understanding and appreciation of how the Eskimos and Lapps adjust themselves to a rigorous polar climate.
C. To develop a keener appreciation for what we have in the United States.
D. To teach these geographic basic facts:
   1. Climate as determined by distance from the equator
   2. Effect of climate on:
      (a) Ways of travel
      (b) Plant life
      (c) Animal life
      (d) Occupations
   3. Effect of glaciers on the earth's surface
   4. The aurora borealis
   5. The poles
   6. The rotation of the earth
   7. Relationship between the sun and day and night and the seasons
E. To give the children the thrill of fine romance and adventure and the value of service to others.

II. APPROACH

How many were at the lecture of Father Hubbard?
What is one oustanding thing that you remember?
What do we call the people who live in cold lands?
What does the word Eskimo mean?

You have studied about Eskimos before. I am going to give you a piece of paper with many of the words that refer to the Polar Regions. Write what each word means that you know. This is to show what you remember about Eskimos as well as what should be taught to you about the Eskimos.

Polar Regions Pre-Test

(In the arrangement of the words write one under the other so that the children have enough room after the word to tell what it means.) Antarctic, Antlers, Arctic, Aurora Australis, Aurora Borealis, Auk, Amundsen, Little America, Blubber, Baffin, Bering, Bunting, Byrd, Caribou, Cache, Eskimo, Explorer, Eider-down, Fulmar, Frigid, Glacier, Greenland, Harpoon, Heather, Igloo, Iceberg, Kayak, Lapp, Musk Ox, Parka, Pelts, Ptarmigan, Penguin, Peary, Puffin, Seal, Sinews, Skua, Tupik, Tundra, Umiak, Walrus.

Scoring: (If the answer is one word and correct give one point; if the answer is a good statement about the thing give two points; if the answer is excellent and concise give three points. After scoring return the papers to the children and have them complete them as they are doing reference reading and come across the meanings.)

Key: 1. Circle or land at the south pole. 2. Horns of deer. 3. Circle, ocean or region in the north polar land. 4. Southern lights. 5. Northern lights. 6. Arctic bird. 7. Norwegian, first to reach the south pole. 8. Byrd's camp site while he explored at the south pole. 9. Fat from the whale. 10. Bay in the Arctic region. 11. Sea or strait in the Arctic region. 12. A bird in the Arctic region. 13. Arctic and Antarctic explorer. 14. Wild reindeer. 15. A storage place used by explorers. 16. A native of the Arctic region. 17. One who studies strange lands. 18. Very fine feathers from the eider duck. 19. A long winged sea-bird. 20. Cold zone or region. 21. A body of ice formed in a region of snow on the land. 22. An island in the north polar region. 23. A hunting spear. 24. A small shrub. 25. Winter house made from blocks of snow. 26. A large floating mass of sea ice. 27. An individual Eskimo boat made from whale skin. 28. A native of Lapland. 29. A large animal with shaggy hair. 30. An Eskimo hood or coat. 31. Fur skins of animals. 32. An Arctic bird the meat of which is a delicacy. 33. A bird at the south polar regions. 34. First to reach the north pole. 35. An Arctic bird. 36. A sea animal. 37. Tendons of animal used by the natives for sewing thread. 38. A sea gull. 39. The Eskimos' summer home. 40. A treeless plain in cold regions. 41. A large Eskimo boat made of skins. 42. A large Arctic animal valuable for its ivory tusks.

III. Outline of the Subject Matter in the Unit

A. Part I. Orientation Period and Discussion of the Eskimos
B. Part II. North Polar Regions
C. Part III. South Polar Regions
D. Part IV. Greenland and Lapland
E. Part V. Plant Life in the Polar Regions
F. Part VI. Bird Life in the Polar Regions
G. Part VII. Animal Life in the Polar Regions
H. Part VIII. Comparison and Contrast of the North and South Polar Regions

IV. Method: Part I. Eskimo

After the pre-test pictures were shown of the Eskimos. These pictures were from the museum. Then the children developed an outline for the discussion of the Eskimos on the next day. They were to get their material from any sources that were marked and placed on their reference table. The references were from these sources: geography textbooks, geographical readers, history books, junior encyclopedias (*World Book* or Compton's), children's books, magazine articles, and newspaper clippings.

The children's outline as developed cooperatively:

THE ESKIMOS

I. Transportation
  A. Water
    1. Kayak
    2. Umiak
  B. Land
    1. Dog sled
    2. Snow shoes
    3. On foot

II. Houses
  A. Winter—Igloo
  B. Summer—Tupik

III. Clothing
  A. Outer suit
    1. Sealskin
    2. Reindeer
    3. Other kinds of fur
  B. Inner suit—bird skin
  C. Water proof suit

IV. Seasons and Day and Night

V. Food
  A. Hunting
  B. Fishing

VI. Habits, Customs and Amusements
  A. Winter
    1. Games
    2. Stories
  B. Summer
    1. Hunting
    2. Fishing

Extra Assignment on the Eskimo for Extra Good Workers:

What is the Aurora Borealis? What causes it? What effect does it have on the Eskimo? What kind of animals are most useful to the Eskimo? Why? How? What does the name Eskimo mean? What is the work of each: men, women, and children? How are the dogs harnessed? How is the leader decided? What do you think about this?

Method for Part II:

ASSIGNMENT FROM TEXTBOOK: *Social Geography: Eastern Hemisphere* pp. 203-208.

Read to Learn and Be Able to Discuss:

The hours of daylight and sunlight near the poles
The darkness of a polar night
The first to explore the north polar region
What the northwest and the passage are and their use
Who Captain Amundsen was and what he did
Who discovered the north pole? When?
Who flew there in 1926? From where?
Others who flew to the north pole
What happens to the snow in the lowlands during the summer
The plant life in the north polar regions
The animal life in this region
The Eskimos living here

Assignment for Extra Good Workers:

Trace a large map of this region putting in all the places mentioned in your own geography in the reading matter about the north polar region.

Method for Part III: South Polar Regions

What does this region include? How many people live here? Why aren't there more people? Do you think there will be more in time? Why?

Textbook assignment for topical recitation: *Social Geography: Eastern Hemisphere* pp. 205, 207.

Page 205. I. Explorations to the South Pole
II. Reaching the South Pole
Page 207. III. Barren Antarctic Regions
IV. Animal Life in the Antarctic Regions

Assignment for Extra Good Workers:

Make a chart or list of the ways in which the North and South Polar Regions are alike. Make a chart or list of the ways that these two regions are not alike.

Summary of Parts II and III: Polar Regions in General

Why is it cold at the poles?
Why can't ships reach the polar regions in winter?
Why is travel overland in cold regions easier in winter than in summer?
Of what use is the airplane to modern explorers? The radio?
Where are the railroads in the north polar regions?
Did all of the explorers have the same motive?
What are the cold treeless plains in the far north called?
What were some of the difficulties encountered by the first explorers?

Assignment for Extra Good Workers:

Which one of the polar regions has greater possibilities for the advancement of science? Prove your answer.

Method for Part IV: Greenland and Lapland

Eskimos and Lapps are natives of the Polar Regions. The class was divided in two groups, one for Greenland and one for Lapland. Material for their special individual and group reports was obtained from reference books and story books. The reference books were the *World Book Encyclopedia, Compton's,* Geography texts, and *Carpenter's Geographical Readers.* For the story books see the bibliography at the end of the unit.

Assignment for Extra Good Workers:

Make riddles or poems on this region or the people.
Show how the Lapps and Eskimos are alike and how they differ in habits.

Method for Parts V and VI: Plant and Bird Life of the Polar Regions

We received most of our material on this part of the unit from the loan pictures of the museum and the *National Geographic Magazine.*

Plant Life

A. Plants of the polar region are: mosses, lichens, ferns, grasses, and flowers.
B. The grasses include: blue grass, Arctic timothy or foxtail.
C. The flowers are: Arctic arnica, Alpine everlasting, Iceland poppy and species of hardy wild rose.

Bird Life

A. The Arctic Bird Life:
1. Sea birds:
Gulls: Kattiwake, skua, Ross Rosy gull, and Ivory gull
Auks: Great auk, black billed auk, puffin or sea parrot, ratche or sea dove, paraquet auk
Jerfalcon
Fulmar
2. Land birds: eagles, hawks, owls, purple sand piper, sandling, snow bunting, raven

B. Antarctic Bird Life: Albatros, penguin, Wilson petrel, sea-pigeon, puffin or sea-parrot, and fulmar

Method for Part VII: Animal Life in the Polar Regions

A. Arctic regions
   1. Land animals: ermine, Arctic hare, musk ox, lemming, blue fox, white fox, tailless snow mice, reindeer, caribou, dogs, and wolves
   2. Sea animals: seals, walrus, whale, polar bear

B. Antarctic has no land animals other than the penguin, but sea animals include: seals, sea lions, whales, dolphins, sponges, mollusks, many species of fish.

C. Fish in both polar regions are: cod, halibut, flat fish and salmon.

Suggested Activities

A. Research Activities:
   Reading for information
   Finding and studying pictures
   Gathering notes for reports
   Reading to answer questions
   Reports on what the child has found out that the class does not know
   Collection of interesting things: spears, harpoon, arrow heads, bone needles, ivory, kayak, Eskimo dolls, shins, sledge, or other Eskimo souvenirs
   Reading to answer problems
   Verifying data for reports or construction or artistic activities

B. Literary Activities:
   Making riddles on the Arctic lands
   Writing descriptions of Arctic lands
   Making original stories, poems
   Dramatizing Eskimo stories
   Writing in the first person probable interesting experiences
   Audience reading of suitable content and length
   (Vocabulary in pre-test can be used for this activity. Put each word on a separate slip, each child draws one. He makes an oral report or a written report about it and draws it.)
   Making a pictorial or sentence dictionary of all the new terms in this unit
   Keeping an individual record book

C. Constructive Activities:
   Modeling clay animals or soap sculpture
   Making a polar village
   Drawing a picture of penguins
   Drawing scenes to show hunting or fishing
   Making scrapbooks
   Compiling a class booklet
   Collecting poems on this region and illustrating them
   Making a fur chart
   Making a class museum
   Drawing from blackboard directions

D. Culminating Activities:
   Radio and television broadcasts from the north and south pole
   Making a dictionary of articles, places and persons connected with the history of these regions

Individual complete report with illustrations on the following: hunting, fishing, whaling, trading, animals, birds, travel in polar lands, food, shelter, clothing, amusements, scenery, explorers, mineral wealth and other possibilities of the polar regions

An original play or puppet show. An exhibit. An assembly. A Who's Who of the polar region

Objective final test

V. FINAL TEST

The north polar region comprises the territory from the ———— Circle to the ————.

Antarctica is in the ———— ———— region.

Three explorers of the north polar region are: ———— ———— ————.

———— ———— discovered the north pole in ————.

———— was the first to fly over the north pole.

The South Pole was first reached in ———— by ————.

Place true or false before each statement:

1. Penguins are sea birds.
2. Seals and whales are common land animals.
3. The land animals in the Antarctic region are numerous.
4. United States does not get any reindeer meats from these regions.
5. Eider-down comes from birds.
6. The reindeer are not raised as extensively as formerly.

Match the following:

1. Byrd	a. Glacier Priest
2. Amundsen	b. First American to reach north pole
3. Hubbard	c. Little America
4. Peary	d. Norwegian who first reached south pole
5. Bennett	e. Second to reach south pole
6. Scott	f. Companion of Byrd

VI. TOPICS FOR ENCYCLOPEDIA REFERENCES

Amundsen	Birds	Icebergs	Reindeer
Animals	Caribou	Ivory	Ross, Sir J.
Arctic Circle	Deer	Musk ox	Schackleton
Arctic Lands	Eider Duck	Macmillan	Scott
Arctic Ocean	Eskimo	Narwhal	Seals
Arctic Sea	Cook, J.	Peary, R.	Snow bunting
Auk	Fox	Polar Regions	Skua
Aurora Borealis	Fulmar	Polar Explorations	Stefansson
Aurora Australis	Fur	Pole (north and south)	Walrus
Bear (polar)	Glacier	Ptarmigan	Wilkins
Bering Sea	Greenland	Puffin	Whale
Bering Strait	Gulls		

VII. PICTURES

Nine groups of pictures may be borrowed from the Grand Rapids Museum for two weeks by any school in the city of Grand Rapids free of charge. To get the entire group, ask for the following sets of pictures: Eskimo, Arctic, Antarctic, Mammals of the Arctic Regions, Glaciers, Snow and Ice, Ivory, Fish Industry, and Whaling. Teachers elsewhere may readily collect pictures from newspapers, magazines and books.

VIII. Bibliography

A. Teachers
1. Unit Material
Foundation Classroom Units (came with *Book Trails*)
The Fur Industry
Viking Tales, "Greenland," pp. 6-8
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N.B. Owing to limited space only a very few of the references are listed.

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N.B. For further excellent reference material see the *National Geographic Magazine*, geography and history books. For stories and poems about the polar regions consult school reading books.

A NEW PROSPECTUS FOR GEOGRAPHY

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INTRODUCTION

Recent trends in general thought apparently are both favoring and challenging the field of geography. Excerpts and statements from varied sources substantiate this contention. Recently the president of one of our leading teachers colleges, while speaking before a large audience, said that one of the greatest needs of a teacher is to know the region in which he works. A traveling salesman for a company of national scope, in an after-dinner speech before a group of business men, suggested that the merchant or salesman should be able to explain to his customer the source of materials in the goods being offered and trace step by step these materials thru the shipping, processing, and transferring to the consumer. In a teacher's manual, used for adult education in one of our states, is to be found: "In our complex life of today it is highly desirable that adults have a knowledge and understanding of the environment in which they live." In recent conferences of three different non-geographic, educational groups the discussions revealed considerable encroachment upon the field of geography, in securing materials for solving particular problems.

The substance of the foregoing and that of numerous other similar citations which might be given suggest three things of interest concerning the status of geography. First, whether recognized as geography or not, there is developing a demand for more geographic information; second, considerable knowledge which properly belongs to the field of geography is being brought into use thru non-geographic channels; and third, geographic information is needed far beyond the realm ordinarily ascribed to the field of geography.

PRESENT STATUS

Analysis of the present status of geography apparently reveals the majority of people as knowing little about what geographers have to offer, and there are definite indications that many accepted as educational leaders and others in positions of importance are not exempt from this rôle. Some of our state universities have no recognized geographers on their staffs; and agents of employment, not knowing what geographers have to offer, "see

no room in their business for them.''[1] None of the numerous geographers employed in the Tennessee Valley Authority were selected to fill positions recognized as geographic. Rather, ''they worked their way in by presenting materials which were recognized as what was wanted.''[2] Furthermore, certain geographic materials that are widely used are rarely considered as such, as is illustrated in the use of the materials prepared by Professors Finch and Baker.

The present status of geography among geographers was well characterized when, in a discussion among geographers, a well-known member suggested that geographers could well confine their work to finding things and interpreting them. A recently formulated state program of geography is based on a three-point criteria: (a) a knowledge of physical facts; (b) a knowledge of human activities; (c) a knowledge of interrelationships between the human activities and the physical facts.[3] A rather general survey of ''the geography of American geographers'' revealed nothing beyond the analytical treatment of human activities.[4] But in reality the majority of treatment is not included in this last step, for yet ''the descriptive element is large, the explanatory is small.''[5]

Geographers in general are confining their efforts to this type of program—they are contented in serving largely as followers. Much time and effort are given to finding what people have done and are doing in the various parts of the earth, with some degree of analyzing the respective activities and accomplishments. All groups, from scientist to savage, are sought for activities and interrelationships, and when these are satisfactorily discovered, contentment is achieved.

Following this program, then, the geographer accepts one or the other of two hypotheses: first, that the peoples performing the various activities, being unaware of interpretation, become recipients of the geographic explanation; or second, that the peoples of the various regions understand their respective activities, and the geographers become intermediaries thru which interpretations in general are disseminated. In either case, under present

[1] McBride, Geo. M., in discussion at meeting of A.A.G., Cambridge, 1938.

[2] Hudson, D., of TVA, in discussion at meeting of A.A.G., Cambridge, 1938.

[3] Bayne, S. F., from address on geography for all the children, before New York Society for Experimental Study of Education, January 8, 1938.

[4] Parkins, A. E., report of survey in Journal of Geography, September, 1934.

[5] Finch, V. C., in presidential address, with reference to Dr. Bowman, A.A.G., Cambridge, 1938.

practices, the interpretative step is in danger of faulty treatment, since the geographer is endeavoring to analyze the activities of all strata of humanity. It becomes only too obvious that there is particular danger of classifying as adjustment that which should be termed maladjustment. But granting that the analyses are correct and that the information is properly disseminated, there is little or nothing gained in the way of creative accomplishment except ideas, which scarcely suffice in this material-minded age.

That valuable contributions in adaptative work have been made under the present program is not to be questioned. The contention, however, is that geographers fall far short of their possibilities. Perhaps, in carrying work to completion, most has been done in the field of conservation, as is illustrated in the recent work edited by Professors Parkins and Whitaker. But in this phase of geography ordinarily the chief emphasis is placed upon the possession, uses, and destruction of resources, with little attempt to formulate a program of utilization. Professor G. T. Renner states that in his extensive travels thru the counties of the United States, despite surveys that cover about three-fourths of the country, he found no plan for conserving resources.[6]

NEED OF A BROADER STATUS

That man has proceeded adversely to his environment in numerous instances is readily apparent. Abundant evidence of this is prevalent in our own country. Quite convincing in this respect, in our humid lands, are the numerous tracts of glaciated, cut-over, waste lands only recently occupied by productive forests; the gutted slopes of the Appalachians, where rich farm lands have been reduced to barrens; and the red, scalped uplands of the Southern Piedmont, where spots preserved by old Negro cabins stand three feet higher than adjacent spaces—the total of which is so pronounced as to be assigned the caption "Abandoned Lands in a Land of Land Abandonment."[7] Similar evidence exists in the arid and semiarid West. Much land formerly under irrigation has been abandoned, in parts from lack of returns, in others from saline developments due to over-irrigation; and in the non-irrigated areas, where success and failure correspond respectively to rain and drought, much of the former grasslands have been converted into ditches and "dust bowls" while the process of occupation and

[6] Given in discussion at National Council of Geographers, Boston, 1938.

[7] Wolfanger, L. A., *Economic Geography*, April, 1931.

abandonment has passed thru the third cycle.[8] The prevalance of similar malpractices over the world in general indicates the dire need of a program which will avoid wholesale destruction of earth resources.

Dr. Bowman has pointed out that "man's degree of safety and happiness is really the algebraic sum of the forces, social and natural, good and bad, with which he must deal, all added to himself."[9] Then if there be given considerable latitude to the term geographic environment, as is rather freely done in the field of geography, one might modify the statement to read that man's existence—his work, play, happiness, misery—is the sum total of self and the forces of his geographic environment. And it is true that geographers in general allot great significance both to the geographic environment and to the relationship between self and the geographic environment. Otherwise there is little reason for the existence of a large percentage of the field of present-day geography and little or no excuse for the present trend toward the social aspects of geography. For knowledge of these interrelationships to be of extended value, however, there must be present sufficient consistency to establish certain principles in such relationships. This, again, appears quite generally accepted, and which allows prestige to our thesis.

But the acceptance of the foregoing and the further statement by Dr. Bowman that "not the least of our environment is made up by the parts that we control" lend sufficient occasion for the extension of the present status of geography.[10] If the environment is of peculiar importance and we control most parts of the environment, it becomes most significant that the parts at our command be scientifically controlled. Then who, one might ask, should be leader in such field? Is it sufficient for the geographer to be student to the savage that he may learn the appropriate activity of a land; or to follow the Khirghiz into Central Asia in order to find his program of life, and, finding, accept it without question?

Prevalent methods of treating the savage in his environment places the geographer in something of a dilemma. First, if the geographer accepts as appropriate the activities of the savage, he sanctions as accurate that which he is unwilling to admit is based

[8] Dr. Smith has pointed out (*North America*, 1926, p. 414) that parts of our western lands had been settled three times and abandoned twice. Since that time abandonment has again occurred.

[9] *Geographical Review*, January, 1938, p. 1.

[10] *Geographical Review*, January, 1938, p. 19.

on scientific method; and second, if he refuses to accept the activities as being appropriate, there is left little or no basis for the recently adopted explanatory phase of geography.

The solution of this complex, it is suggested, lies in the acceptance of the challenge by Professor Colby that "the geographers' new field of pioneering is in applied geography."[11] And it approaches a corollary that geographers who utilize the explanatory phase of the subject are in position to take this forward step, since the analytical knowledge would seem the chief prerequisite to the adaptative program.

The inclusion of applied geography in the program would be in keeping with scientific effort in general. It seems trite to refer to the significance of the applied phase of various fields, as in surgery, in engineering, and in agriculture. A particular reason for the success of business and commercial schools is that they have fitted people to perform particular tasks. This performance of the tasks is the goal sought. The adaptative step would place geography in the same category. There would be alienated from the field the semblance of effort for the sake of accomplishment, which would be in agreement with the statement by Professor Finch that "scientific effort for the sake of such is rapidly going overboard."[12] While there is a place in geography for the aesthetic phase of life, there also are various services to be performed in the material realm. This materially productive phase of geography also apparently would do much to popularize geography without propagandizing the subject.[13]

Lastly, it would seem desirable to dispel the existing fear of encroaching upon other fields. Perhaps the field of geography has been encroached upon by others and should be expanded to include its rightful scope. Would it not be preferable to consider any worthwhile accomplishment a contribution rather than an encroachment, regardless of whether it be classified as "pure geography" or as "impure geography"?[14] Professor Hudson regards work in the TVA as making contributions to rather than encroachment upon other fields.[15] Professor Ekblaw projects the idea still further by

[11] Suggested in discussion at meeting of A.A.G., Cambridge, 1938.

[12] From presidential address, A.A.G., Cambridge, 1938.

[13] Dr. Helen Strong suggests that there should be no attempt to propagandize geography. A.A.G., Cambridge, 1938.

[14] At the A.A.G., Cambridge, 1938, there was considerable discussion as to whether certain materials were "pure geography" or "impure geography."

[15] Brought out in discussion at A.A.G., Cambridge, 1938.

declaring that he has always felt that geographers have a great deal to contribute to the field of engineering.[16] In agreement with this suggestion is the material on geography and disease, in preparation by Wm. B. Brierly.[17]

Geography of Tomorrow

Following this thesis, there exists a broad field for the geographer of tomorrow. He should be able not only to interpret with precision the activities and developments in use, but also to become an important contributor in the field of applied endeavor. The use of this analytical knowledge in new regions like our Pacific Northwest, according to O. W. Freeman, should be of particular aid in bringing about "an orderly utilization of resources" and lead to "improved opportunities and more favorable conditions of life for the average man."[18] A broader application of this is to be found in the suggestion by Professor Strong that "a special opportunity and responsibility of the geographer is the integration of earth resources and human life."[19]

The geographer's program, according to the foregoing statement, includes numerous services in handling natural resources. A list of these for such treatment may be obtained largely from a typical course in conservation, which would merely be projected into an applied program. Or the list may be selected by criteria which reveal whether a resource is being utilized or preserved, present and future generations considered, for the best interests of mankind. The tasks of perpetuating the forests for material and aesthetic values; utilizing the streams for power, navigation, and water supplies; maintaining and improving the soils for perpetual agriculture; draining the wet lands and irrigating the dry lands for both health and production purposes; and other improvements need some form of scientific guidance instead of being left to the ravages of haphazard effort and the peril of political propagandists.

Similar services might be performed by the geographer in the commercial world. Much geographic knowledge is of necessity employed in the buying and shipping of products. Buyers must know

[16] *Ibid.*

[17] It is of interest to note that Professor Brierly has had training both in geography and in medicine; hence is in position to appreciate these relationships.

[18] Report of in Journal of Geography, March, 1938, p. 116.

[19] Stated in discussion at A.A.G., Cambridge, 1938.

where to secure the desired commodities and when these commodities are available for the market, as well as knowing something of climatic and weather conditions as related to the shipping. Likewise industrial companies require information concerning resources and opportunities for making and carrying on developments; promotion companies need an analysis of new regions and new enterprise to avoid speculative procedure; and investors would profit by specific geographic knowledge of regions and enterprises to which funds are extended.

Extensive planning and replanning of present developments might be guided by the same leadership. Numerous are our cities which will of necessity be reshaped at staggering expense. Rearrangement of these for present use, in view of future developments, is a task requiring analytical treatment of the regions in which they are located. The same guidance is needed in locating and developing new cities that past experiences in expensive remodeling, destructive floods, and ephemeral growth may be avoided. If, as some think should be done, our three thousand-plus counties are reorganized in keeping with modern travel and transportation, much geographic skill should be utilized in fixing the new boundaries. That something of the principle being employed in the TVA development should be of national or even world-wide scope seems only too apparent. The time appropriate for doing and the character of the program are the difficult factors. To say that the TVA development is appropriate in time and character may be incorrect. It may be the right time, probably it should have been instituted fifty years ago, or possibly delayed fifty years. Perhaps the methods employed are faulty, or that the project should have been located elsewhere. But neither, nor all combined, destroy the principle. The scientifically planned and operated region, country, or world should be a more practical, a better place in which to live.

Finally there is a place in our political life for the trained geographer. If the work of geographers has proved helpful in the conservation of resources, land planning, etc., it is a corollary that a political leader with geographic training would be in position to aid in recognizing and promoting such work. The only basis upon which to exercise proper judgment in allocating national funds is a clear perspective of our country. Neither should the visualization be confined within our national boundaries. Many national problems have international relations. Programs of crop control that fail to utilize knowledge of world conditions for pro-

ducing the respective crops fall far short of scientific approach.[20]

The foregoing are but a few of the many activities in which, it is believed, geographic information may be employed. As the specialists in various fields have put to shame the haphazard efforts of the unskilled, so it is hoped that the geographer of tomorrow, as specialist in the interrelationships between human activities and the geographic environment, may be able to proceed with the same degree of accuracy in integrating earth resources and human life.

CONSERVATISM IN PIONEERING

In accepting the challenge the geographer of tomorrow should proceed with caution. It is true that the environmental factors controllable by man may lurk with deceptive possibilities. It likewise is true, in many instances, that misinformation is worse than no information. Not all change is impregnated with good. Neither should change necessarily be accepted as advancement, particularly rapid change, for in so doing it may result in human misery rather than in human happiness. We are prone to ignore the hazards of adopting the new, forgetting that the moment power fails the crew may be left to the rigors of a mountain crag or of an ocean deep, and that our age of greatest mechanized devices likewise has been our age of greatest unemployment and relief. From irrigation the unproductive but healthful, tropical desert may be transformed into a land of beauty and productivity, but in so doing there may be created a habitat for microscopic animals that tear at the vitals of human existence. And, similarly, the eradication of a certain factor inimical to man may result in creating a condition worse than that for which improvement is sought.[21]

If the geographer accepts the rôle of applied scientist, he necessarily assumes a task which will require continuous, creative effort. He must maintain an alert realization that the world does not possess a static culture, but that environmental relationships are in constant state of change—slowly to be sure in early history of man, but ever more rapidly as time passes. A relationship entirely appropriate today may be outmoded tomorrow. Hence the geographer-scientist should not only be able to plan for the present in such a way as to avoid destruction from environmental change,

[20] The varied experiences of Brazil concerning its coffee valorization program suggest both the national and the international aspect of products.

[21] See the outcome from eradication of the tsetse fly in Africa, *Geographical Review*, January, 1938, p. 6.

but be able to visualize the future sufficiently to aid in approaching changes. While there seems a need for conservatism in procedure, it is hoped that the geographer of tomorrow will not be content with the finding-describing-interpreting status, but will become a real scientist with the adaptative phase of his field as the goal—that he may venture beyond the status of *capacitator* and become a *formulator*.[22]

THE POSITION OF GEOGRAPHY IN THE HIGH SCHOOLS OF ITALY

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In a country of ancient civilization such as Italy, not unjustly referred to as an open-air museum of geography, where, for millenia, man has wrested with nature in order to dominate the environmental factors unfavorable to him, in a country so varied in topography and climate, reaching with its colonies from the Alps to the Equator, and which has sent millions of its sons to the four corners of the earth, one would expect the study of geography to rank foremost, and that especially the teaching of geography in the high schools would be considered of fundamental importance, not only as a most necessary subject for the formation of the future citizens, but also as a most practical subject. However, even a superficial examination of actual conditions in the middle schools shows the contrary to be true. In general, the youth of Italy leaves the high schools with an exceedingly unsatisfactory training in geography, a fact which has been attested to by several reports of an official character.

At the present time, the Italian high schools, frequented by students of the ages from 10 to 18, belong to three different types: classical schools, technical schools, and schools for the training of teachers. From 1923, as a result of the reforms instituted by Gentile, the noted idealistic philosopher and professor at the University of Rome, the teaching of geography in these three types of schools was not entrusted to one or more persons in charge of geography for all classes, altho to a geographer such an arrange-

[22] See *capacitator* as used by Dr. Bowman in *Geographical Review*, January, 1938, p. 3.

[1] Translated from the Italian by W. Van Royen, University of Nebraska.

ment would appear the most logical and desirable.[2] In the lower grades of the most common type of high school, the classical school, the subject is taught in conjunction with history, Latin or the mother tongue by instructors who had their training in the Literary Faculty of the universities, while in the higher grades it is given by teachers in the natural sciences, together with biology, physics and chemistry. Thus in many schools geography is not taught as an autonomous subject. Other subjects, however, have a similar non-autonomous position: history, for example, is taught in the upper grades as an adjunct to philosophy. As a result of this condition, no teacher can devote himself entirely to geography in order to perfect himself in this discipline, which is so exacting because it is a science which bridges the gap between the natural and socio-historical sciences. The principal deficiencies of geography in the Italian high schools are the following:

A. The teacher in the lower grades has had little training in the observation of nature, in the use of various methods of cartographic representation, and has little appreciation of the real position of geography as a link between the natural and social sciences. This is particularly true since in the universities geography still has primarily a humanistic character. The chair of geography is generally a part of the Literary Faculty, and the female element predominates among the students. In the upper classes the instructors in natural science attempt, with considerable difficulty, to teach the essence, the aims, and the methods of the science of geography, but since they are accustomed to treat their material from a purely analytical point of view they generally neglect the treatment of those economic-geographical and political-geographical problems which at the present time are of the greatest interest. On the whole, the instructor in the high schools does not have much incentive for a better preparation in geography, as a direct practical result of the lack of an autonomous position of the subject.

B. The hours devoted to geography are so limited that time is wanting for an adequate treatment of this subject matter. This is well illustrated by the curriculum of the Gymnasium-Lyceum, the principal cultural school, from which graduate most of those

[2] At present (December, 1938) another reform is under consideration according to which the lower classes of the different kinds of high schools would all have the same curriculum.

who later will occupy themselves with science, politics and administration.

Class	Average age of pupils	Total weekly hours of 60 minutes (exclusive of Phys. Ed.)	Of which history and geography (usually half geography)	Program of the geography course
I	11	21	4	Fundamentals of general mathematical and physical geography and anthropogeography
II	12	24	5	Italy
III	13	24	4	Europe
IV	14	24	3	Asia and Africa
V	15	24	3	America, Oceania, Polar Regions
VI	16	27	4 (Of which natural sciences and geography)	Only natural sciences
VII	17	26	3	Only natural sciences
VIII	18	25	2	Physical geography, geology and anthropogeography

From the above table it can be seen that in the first five grades complete elementary instruction is given in general and regional geography by teachers with training in the Literary Faculty. The directions given by the scholastic authorities prescribe that the teaching itself, tho remaining essentially descriptive in character, shall be supplemented by all such explanations, based upon simple reasoning, of phenomena and relationships of facts which are suitable to the mental capacity of the pupils. In the upper classes geography is limited to two hours given by instructors in the natural sciences and deals only with the general aspects of the subject. Since in these higher classes regional geography is lacking entirely, the pupils, when leaving school, really remember of the geography of Italy and Europe only a part of the little which they learned at the ages of 12 and 13.

In the training schools for teachers (average ages of pupils, 11 to 17 years), which serve the preparation of instructors in the elementary schools only, conditions are even more unfavorable than in the gymnasia-lycea. The geography program of the first five years of the latter type of schools is compressed into four years, while during the last year geography has to share the available time with chemistry and mineralogy.

C. One practical inconvenience results from the fact that no separate grades are given for geography and that in the State examination, which has to be taken by the pupils at the end of the

eighth year, great emphasis is put on Italian literature, the classical languages and history, while the natural and related sciences come only in second place.

D. The equipment of the schools is very limited and the use of wall maps, globes, models, photographs, and lantern slides is not very common. The geography program itself might be fairly satisfactory, but as has been mentioned above, both the time and the means are lacking for an adequate teaching of the contents of this program.

However, besides these aspects of the geography program in the Italian high schools, which we may consider as primarily *negative,* we can, fortunately, also point to some factors of a *positive* nature.

A. In some technical schools, such as those for administrative and commercial training and the technical nautical schools, geography has been given a position much more commensurate with its importance, a position which it should have in all other types of schools. During the eight years the students attend these institutions, the curriculum reserves for geography 17 hours, distributed as indicated in the table below.

Class	*Hours*	*Subject matter*
		Lower Division
I	2	Introduction to geography. Europe and Italy
II	2	Italy
III	2	Regions and States of Europe
IV	2	Other parts of the world
		Upper Division
I	2	General geography
II	2	Italy
III	2	Europe and other continents
IV	3	Geography of production and communication

In this way there is a possibility of more thoro training in the subject. In the lower classes the pupil is made acquainted with the nomenclature of geography and with the localization of facts, while in the upper classes, during a repetition of the basic material, it becomes possible to emphasize causal relationships and the distribution of phenomena. Besides, the teacher does not have to devote a considerable share of his time to the other subject matter, and at least in the larger schools of these types there is the possibility of complete autonomy for geography. The instructor in geography thus also has a chance to perfect his knowledge, and, eventually, to be promoted to University work. The curricula of these schools are very commendable and are

designed to give more opportunity for the study of economic facts than is the case in the gymnasia-lycea.

B. The textbooks and the atlases for high schools, at least those most used, are from all points of view very good as the most eminent professors of geography at the Italian Universities have given their time to the preparation of them.[3] Probably the number of textbooks is rather excessive and the teacher may have some difficulty in choosing the ones he prefers, but it is hardly feasible to propose a remedy for this condition. Very useful in the teaching of geography also is the "Calendar-Atlas" of de Agostini, which is a model of its kind, and makes it possible to keep the textbooks up to date.[4]

C. To promote a greater diffusion of geographical knowledge, the Ministry of Education has repeatedly requested the teachers to give scholarly lectures on actual problems to the alumni of the high schools; for example, on the Italian colonies, on the position of Italy in the Mediterranean, etc., and has advised the use of good geographical literature. In order to facilitate and popularize the use of geographic maps, the Institute of Military Geography has prepared for many localities a special edition at a reduced price of the sheet giving the surroundings of the city where the school is located.

All in all, we are convinced that the position of Italian geography could be improved materially, especially if it should be possible to provide for a more adequate training of the teachers, for a more autonomous position of geography in gymnasia-lycea and teachers training schools, and for a number of hours of geography-teaching more commensurate with the fundamental importance of the subject in our present day world.

[3] The principal geography textbooks for the Italian high schools are the following: R. Almagia, *Corso di geografia* (Course in geography), Editore Perrella, Napoli; C. Colamonico, *Corso di geografia generale ed economica* (Course in general and economic geography), Editore Vallardi, Milano; G. Dainelli, *Paesi e genti. Corso di geografia* (Countries and people—Course in geography), Editore Mondadori, Milano. These textbooks are all illustrated with appropriate pictures and maps. Their size varies from 150 to 200 pages for each year of the course. The three principal school atlases are: Baratta-Visintin, *Atlante della produzione e dei commerci* (Atlas of production and commerce), Editore de Agostini, Novara; *Atlante metodico* (School atlas), Editore de Agostini, Novara; Pennesi-Cora-Almagia, *Novissimo Altante di geografia fisica e politica* (Newest atlas of physical and political geography), Editore Paravia, Torino.

[4] The "Calendario Atlante de Agostini," which has been published already for 36 years, is a pocket-size book consisting of two parts: one of text material giving a brief description of all countries of the world (450 pages) with many statistics and economic facts, a second consisting of 30 maps.

MAPS PRACTICALLY FOR THE ASKING

HAROLD GLUCK
Walton High School, New York City

That maps are indispensable for the teaching of geography is no longer questioned by teachers. The problem is how to get a variety of necessary maps when educational appropriations are cut to the bone and the pleas of supervisors fall upon the proverbial deaf ears of the members of budget committees.

In moments of sheer desperation we wish for Aladdin's lamp or a map worked by Walt Disney's dwarfs. Unfortunately wishful thinking can't solve our problem. But there do exist sources from which we can obtain maps free of charge or at very little expense. And no matter how we deprecate our constructive talents, there are simple maps that we or our students can build which will be suitable for teaching purposes.

Free Maps

My best sources for free maps have been gasoline stations, railroads, steamship lines, and travel bureaus. In some cases foreign consulates and chambers of commerce of foreign countries will give you some maps. In the case of local maps you will often find the chamber of commerce and other trade organizations willing to cooperate provided you don't ask for too much. There are also many business organizations which will send you excellent maps if you do not object to the mention of their names or product upon the map.

The American Can Co. at 230 Park Ave., New York, N.Y., has an excellent map of Hawaii which is available to teachers upon application and a three cent stamp. The Great Atlantic and Pacific Tea Co. of New York distributes an excellent food map of the United States, upon application and at a nominal amount to cover cost. The Grand Trunk Railway System and the Rock Island Lines have very good railroad maps of the United States. You will also be able to obtain some maps from the various airlines. The Associated British and Irish Railways issue a descriptive booklet with a railroad map. Cities Service, Shell, Conoco, Colonial Beacon Oil Company, Standard Oil Company, and others, have contributed serviceable maps to my collection. And from Intourist I have a map of the Soviet Union and Europe showing principal transportation connections.

Watch your local postoffice and you will notice wall maps showing airline service and other important data. Ask your local postmaster or the official in charge to save them for you.

Special occasions will bring forth free maps. In our city one of the large banks distributed maps of the city and the route to the World's Fair. Whenever you see a map used in a store for illustrative purposes, always inquire what they do with it when it has served its useful purpose. Many times, if you know how to ask for it, the map will land in your class room.

You can obtain many free maps issued by the United States Government. In the United States Government Manual you will find a complete list of the various bureaus, agencies, and the governmental departments. You can write to the official in charge and inquire what maps they issue. The General Land Office in the United States Department of the Interior has issued a bulletin entitled, "Land of the Free." It tells the story of the beginning and growth of the American Nation. A folded map of the United States is appended to the bulletin. Copies are available free upon application.

NEWSPAPERS, MAGAZINES, AND OTHER SOURCES

Within recent years, newspapers and magazines have increased the space given to maps. The undeclared Chinese-Japanese War, the late Civil War in Spain, and the changing boundary lines in Europe made the printing of maps in newspapers necessary. It is quite evident that if the reader tried to follow some of the news items without an accompanying map, the data would have been almost meaningless.

My students cut out all maps found in the various newspapers. We have been able to get some excellent colored product maps of countries from Sunday editions of newspapers. Whenever a newspaper gives advance notice of the printing of a special map, I place this information on the blackboard, and the day after the appearance of the map, we usually have a sufficient supply on hand.

There are two methods which will help you check up on maps in magazines. One is to ask your newspaper dealer to permit you to glance thru a sampling of magazines each week. Explain your reason, and he will be glad to accommodate you as a prospective customer. The other method is to get the librarian in the school or public library to do this for you. The two fairs held at the opposite ends of the country have occasioned some excellent maps. And you can never tell what magazine will have the map for which you have

been looking for weeks. It may be the long established conservative magazine or one of the new pictorial group which have appeared in recent years.

The National Geographic Society distributes some very scholarly maps. If you are not a member, you may be able to find a friend of yours or the parents of some of your students who subscribe to the magazine and will be glad to give you the maps.

Write to the United States Printing Office, Washington, D.C., and ask for a list of maps available for distribution. Many of these may be purchased at a very low cost. In addition, request that your name be placed upon the Weekly List of Selected United States Government Publications. This will enable you to check up on most of the new maps as they are issued. In this manner I was able to obtain a large map showing the trade agreement program of the United States.

Many reliable stores have drastically reduced the price of outmoded maps. I have been able to purchase for a few cents maps of the world, the United States, and Europe. Using red and blue ink to show recent changes, and adding a code key to the bottom of the map, you can clearly show recent geographical changes.

Outline Board Maps

You can make a very simple outline map with the aid of a key. First outline the map on the blackboard with a thin piece of white chalk. Then go over the white lines with the edge of a key, using medium pressure. Erase the chalk marks and you will have a very satisfactory outline map. The scratched outline will not hinder you from using the board for other writing purposes.

Another method of doing this is to use white or black enamel. Dip a thin brush into the enamel and go over your outline chalk marks. Your result will be a raised outline board map. If you have blackboards in the back of the room in addition to those in front of the room, you can draw outline maps of the various continents. Those drawn by means of the key should be in front of the room while those drawn by means of enamel should be in the back of the room.

If any objection is raised by the school authorities to these two methods, there is a third method which will give you a semi-permanent outline map. Draw your map with chalk which is wet. In order to remove it from the board, wash the board with a wet cloth.

PAPER OUTLINE MAPS

For testing purposes and home assignments, paper outline maps are valuable aids. If you have a mimeograph machine in school, the following method can be used to supply your students with a variety of outline maps. Obtain a piece of glass, slightly longer and wider than the standard stencil. Plate glass, because of its thickness, is best. If possible, get a piece of frosted glass, tho ordinary plain glass will do. With adhesive tape make a binding around the edges to prevent your fingers from being cut. Place the lower end of the glass on the table and the upper end on four or five books. Underneath place an electric bulb of 60 watts, in a socket attached to an extension cord. Place your stencil on top of the glass. Your stencil can be held firmly to the glass with the aid of two clamps which you can purchase in a five and ten cent store. Underneath your stencil sheet place the map you wish to copy. If you are going to draw free hand, then of course you need no map underneath, but in its place put a sheet of carbon paper. Light the electric bulb and with the aid of a stylus you can cut an excellent map stencil that will give you several hundred maps.

If you haven't a mimeograph machine in your school, a cheap hectograph will give you satisfactory results. In this case, place the map on the glass plate and a sheet of paper over it. The light from the electric lamp will enable you to see the map beneath your paper and to copy the map with a pen and duplicating ink.

In an emergency, without a mimeograph machine or a hectograph, the sum of ten cents will rescue you. You can buy twelve carbon sheets for this amount and have several of your students help you trace maps with the aid of carbon sheets. You will get the best results if you make four at a time.

An entirely different type of procedure is to use stencil outlines. It pays to buy stencil sheets and cut out your outline maps. Several of your students can draw paper outline maps for your class needs by tracing around these stencils. If you do not wish to purchase special stencil paper, you can use shirt cardboards with satisfactory results.

If you have a wood working or carpentry shop in your school, you can have outline stencils cut from veneer wood with a scroll saw. The easiest way to do this is to paste a map on the veneer wood and cut around it. The veneer wood with a firm wood backing and a back handle grip can also be used to make outline board maps by tracing around with chalk.

As a project you can have your class cut outline maps from linoleum squares and these in turn can be used as printing blocks from which you can print maps.

GLASS OUTLINE MAPS

This type of map permits a student to see his mistakes and correct them. If possible, obtain a large picture frame with the glass in it. If this is not convenient, a large piece of glass with taped edges will serve fairly well for the same purpose.

Remove the picture and cardboard backing from the frame. With a thin brush, using paint or enamel, either on the outside of the glass or from the inside of the glass, outline your map. If you use the outside of the glass, you can trace a map placed inside the glass. However, over a period of time the paint lines will become obliterated as a result of handling the glass. This can be prevented to a large extent, by first painting your outline map, letting it dry and then giving it a coat of varnish.

If you outline your map from the inside, you will have to draw it in reverse and this may be rather difficult to do. Make your first map of this type a map of the United States. Use key numbers for rivers, cities, mountain ranges, waterways, canals, and other geographical data you wish your students to know. After a student has recited and given in terms of the key number the information you have requested, you can insert the map in the frame so that the student can recheck his results and find his own mistakes. If you are using the picture frame, this will be easy to do, as the replaced cardboard will hold the map in place. Have the top of the cardboard slit, so that the map can be inserted at will. If you are using the plain piece of taped glass, you will have to use two clamps to hold the map in place.

If you or any of your students have an etching outfit, you can make an etched glass outline map. If possible, secure a sheet of frosted glass and have the map etched on the smooth side. By placing a colored electric bulb back of the glass, you will have a fine effect.

One of my students had an electric pen used for pyrography. She traced a map on a sheet of wood in pencil, and then burned out the outline. An electric soldering iron can be used just as effectively for this purpose.

CLAY AND PLASTER-OF-PARIS MAPS

A ten cent box of colored clay will provide sufficient material to make a map suitable for teaching purposes. These boxes are sold in "five and ten stores," stationery stores or toy stores. These boxes contain strips of colored clay.

Take the cover of a cardboard box and draw an outline map upon the inner surface. The rim of the box acts as a guard and frame. Then fill in each country with different portions of the colored clay. You can show rivers, mountains, and cities. It is not necessary to bake the clay. Some of my clay maps were constructed two years ago and are in perfect condition today.

Slow setting plaster of Paris can be used to build topographical maps. Draw your outline upon a piece of board which will serve as the base of the map. Build up your map section by section. In order to get your elevations relatively correct, you can use pins and nails stuck into the board to help you judge your elevations.

GLOBES

There are various methods which can be used to build globe maps. The difficult task is to find a round object which will satisfactorily serve for such a map. My best results were obtained by having maps painted on rubber balloons. These toy balloons can be purchased for five cents each, and when inflated, will give you a very large sized globe.

An inverted fish bowl can be used as a base on which to paint or paste a map. If you can get an old fashioned semi-circular umbrella, you can have a suspended semi-sphere in the class room. Using the ribs of the umbrella as guides, you can paint with enamel the cloth of the umbrella. If you can get two such umbrellas alike, by tying the rib ends together with fine picture wire you can get a very large globe.

Lamp shades can be used as a base either for a painted map or for a pasted map. If you can get an old basketball or medicine ball, you can construct a very good globe map.

Many sporting goods stores, department stores and "five and ten cent stores" sell large rubber beach balls. You will be able to get some of them from your own students. When these balls are inflated, they make excellent globes.

The Trylon and Perisphere at the World's Fair have caused many stores to build models of them. When they are no longer

needed by the store, the perisphere can continue its existence as a globe map.

I cut out a map from a newspaper showing the flight of the Yankee Clipper with its cargo of mail. Pasted around a water tumbler, the ends met, and the result was very satisfactory.

ROLLER MAPS

Old window shades can serve as a base for various kinds of maps. Ask your school custodian or the carpentry teacher to make a holder of wood for the window shade. On the top of the wooden frame have two hooks attached so that you can hang maps up before the class. Or you can buy two suction rubber cups and have these attached to the frame. This will permit you temporarily to place the window shade on the blackboard. You can paste maps on the shade; cut a stencil from it; or draw outline maps upon it. Keep them in the closet and on the bottom of each shade write its title.

THE MAP CORNER

A section of my class room is devoted exclusively to maps that I have obtained by some of the methods which have been described. One drawer is labeled, "Maps." Any student is free to go to this drawer and take a map necessary for her work. Originally I had a map secretary in charge, but this took too much of the student's time when the number of maps increased. The simplest way to run a map drawer efficiently is to place a large number on the back of each map and file them in order. Then post in a convenient place the description and accompanying number of each map. Or if you so desire, you can use a card filing system.

Many of my paper maps are glued on the blackboards in the back of my room. If you have a bulletin board, you can post some of them on the bulletin board and glue some of them on the blackboard.

Regardless of the time and effort you have put forth in order to build or acquire maps, always remember they are intended for student use. And if they should become worn, just be cheerful about the matter, for they are serving their destined purpose. For without maps, geography teaching can become merely the handling of meaningless words.

EDITORIAL NOTES AND NEWS

The division of Poland between Germany and U.S.S.R. now appears to be completed. The present boundary between Germany and U.S.S.R. is approximately as shown on the accompanying map. U.S.S.R. has increased its area by 76,000 square miles and its population by 11,900,000 (Polish census of 1931). The Soviet Republic of White Russia received 42,000 square miles and 4,600,000 people, and 34,000 square miles and 7,300,000 people were incorporated in the Soviet Republic of the Ukraine. A small area about Vilna was ceded to Lithuania in return for military bases. Present

estimates give U.S.S.R. an area of 8,252,000 square miles and a population of 182,300,000 (Soviet census of 1939). It appears that Germany fought the war in Poland and U.S.S.R. obtained a large share of the spoils. At the time this is written U.S.S.R. is finding a far more difficult route to travel in its invasion of Finland.

Forest Service reports that this year's cost of planting field windbreaks in the Prairie States Forestry Project is about 5¾ cents a tree or shrub. This cost includes investments in and depreciation of equipment, seed collection, rodent control, and planting and care of about 70,000,000 seedlings and transplants now growing in nursery beds. The Government supplies the trees, labor, and supervision; farmers invest an equal amount by furnishing the land, fencing material, and labor in preparing the land and cultivation of the trees during their first years of growth. The cost is carried by W.P.A. funds and labor is furnished from W.P.A. relief rolls. Technical and administrative supervision is by the Forest Service. It is said that the trees modify the wind to some extent for a distance of 50 times the height of the trees.

For generations we have heard the story of how Netherlands would, in case of invasion, open the dikes and flood the country—actually, return part of it to the sea. With the present threat of invasion, part of the lowland area has already been flooded. When the safety of peace again returns it will require many years to restore the flooded land to its former usefulness. The accompanying map shows the areas that may be flooded. It should be noted that flooding does not offer a complete water barrier against German invasion. It remains to be seen whether the Dutch can prevent the advance over these dry-land sections. However, suppose the flooded areas freeze solid?

It appears that when the Japanese set up the state of North China, the name of the city of Peiping was changed to Peking, the former name. The syllable "king" stands for capitol, while "ping" stands for peace. Nanking is the southern capitol.

DR. S. S. VISHER, Indiana University, will teach at the University of British Columbia next summer.

It is reported that the Chilean earthquake of January 24, 1939, destroyed nearly fifty thousand lives and made seven hundred thousand people homeless. Figures for property damage are not available, but they include such losses as the interruption of telephone, telegraph, and power lines; twisted, broken, and blocked railways and highways; damaged irrigation ditches; and wrecked or weakened buildings and bridges. In the reconstruction program that the Government is carrying forward, provision is being made for a reasonable security against similar quakes. The Government's total internal and external loans authorized in the devastated areas total two billion pesos ($64,000,000).

For several years, the Pan American Airways System has offered under the auspices of the Institute of International Education, New York City, twenty travel fellowships, providing return transportation to and from the United States for one student from each of the Latin American Republics for the purpose of studying a year in this country. The plan is now being extended to provide American graduate or research students with a fellowship to any one of six Latin American countries. For further information write to the Institute.

The Geography Section of the Maryland State Teachers Association held its annual meeting, Oct. 27, in conjunction with the Association meetings in Baltimore. The guest speaker was Professor W. R. McConnell, Miami University.

Most of the northern grown fruits and vegetables will stand near-freezing temperatures better than those grown in or near the tropics, or those whose original home was in the tropics. Low temperatures cause pineapples, mangoes and avocados to lose flavor and texture, and make them readily susceptible to decay from storage. Such fruits should not be chilled until immediately before serving.

DR. JOSEPH VAN RIPER has been added to the staff of the geography department of the Southern Illinois State Normal University at Carbondale. This University has an active and growing chapter of the geography fraternity, Gamma Theta Upsilon. Professor Edwin H. Reeder, University of Illinois, was a recent guest speaker at a luncheon meeting of the Chapter.

EARL B. SHAW, head of the geography department, State Teachers College, Worcester, Mass., had charge of the two geography courses given on the cruise to South America of the eighth Biennial Conference of the World Federation of Education Associations. There were 156 registrations for Dr. Shaw's courses. Two geography section meetings were held during the conference. Those participating on the sectional programs included Dr. Shaw, Miss Vivienne Whorley, Bryant School, Denver, Colo.; Miss Louise Mears, State Teachers College, Milwaukee; Dr. Norman F. Black, Editor, *British Columbia Teacher,* Vancouver, B.C.; and Dr. Julia Shipman, Department of Geography, Mt. Holyoke College. One of the sectional meetings was held on shipboard and the other at Puerto Rico.

The National Council of Geography Teachers held three sessions in conjunction with the National Education Association Convention held last summer in San Francisco. The programs, arranged by Erna Grassmuck Gilland, chairman of the Educational Relations Committee, were presented by a number of geographers and instructors in geographic education. The theme headings for the sessions were as follows: Synchronizations of Geographic Education with Other High School Learnings Based on the Pupils' Experimental Background, Geographic Education in Democratic Living, and Sequential Geographic Education Goes Forward.

DR. DAVID J. SWARTZ, chairman of the Geography Section of the New York Society for the Experimental Study of Education, is again planning a series of sectional meetings and exhibits of geographic materials. The November speaker was Professor Edward M. Lehnerts, Chairman of the Department of Geology and Geography at Hunter College. Dr. Swartz in a recent issue of the *Geography Teacher,* organ of the New York Geography Section, has an article in which he pleads for the organization in New York City of a High School of Social Studies where geography will have a specific part of the curriculum. Such a high school would be on the par with those New York high schools already specializing in some phase of vocational or academic work. Dr. Swartz's article also appears in the 1939 yearbook of the New York Society for the Experimental Study of Education.

More and more consideration is being given to establishing within a house certain desired air conditions to suit one's comfort and health which are quite apart from the climatic elements existing outside the house. So many insulating materials for walls, ceilings and floors have been developed, as well as ways to install them, that many buildings are using these as a specific part of the structural materials. Similarly, the outside character of the surface of a building as to its absorption or reflection powers are the subject of many investigations. Thus, according to an article, Climate and Housing, appearing in a recent issue of *Sigma Xi Quarterly,* on a hot summer day solar

radiation may raise the temperature of a tar and gravel roof as much as 60° above the air temperature. Also, at least 95 per cent of the radiant heat from the sun's rays passes thru average window glass. Only a small percentage is reradiated. This is advantageous in winter, but undesirable for human well-being in summer. The best method of controlling this heat is to shield the windows on the outside. Awnings giving reasonable coverage may reduce the total heat entering to about 22 per cent as compared with the 95 per cent passing thru the unprotected window. Aluminum paint on awnings reflects more of the sun's rays than the ordinary canvas awnings. Outside shutters of the Venetian blind type may be equally efficient. On the other hand, the heat is only reduced to about 58 per cent if the Venetian blinds are on the inside of the windows. A fully drawn aluminum painted shade may permit only 45 per cent from entering a room, while a buff colored shade permits 68 per cent to enter. One wonders if the results of similar studies on clothing and well-being will some day outweigh fashion in giving men and women the data for selecting clothing adapted to outdoor as well as indoor temperatures.

Once again Tibet has a "baby" Buddha, its fourteenth Dalai Lama who will rule Tibet till his death. To become a Dalai Lama, a baby boy must be found who was born at the exact instant the former Dalai Lama died. The baby is thus the reincarnation of the deceased Lama, the embodiment of the ever-living Buddha. The search for this baby by the Tibetan priesthood lasted five years. The new Dalai Lama rules over state and church and is backed by a priesthood that includes one-seventh of the entire population.

Cardiff is well known as the most important port for the export of British coal. It is also well known for its import and distribution of mining-timber from Europe and Canada, for its manufactures of tin plate and other iron and steel specialties. Less well known, pehaps, is the development of the import and processing of food products, especially potatoes and wheat; and of wood products for paper; all of which are in turn sent overseas or by rail into the interior, especially to the densely populated Midlands are only a hundred miles away.

In these days of war embroilments in Europe it is perhaps well to speculate on the war's possible repercussions on world rubber production. According to a recent release from the United States Department of Commerce about 97 per cent of the world's rubber is grown on plantations in the Middle East. Netherlands Indies and British Malaya are about equal in production which is about seven-ninths of the world's total. After them come French Indochina, Ceylon, and Thailand. On the other side are the synthetic rubbers, especially those of Germany and the Soviet which, however, as yet cost two or three times as much as natural rubber. At present an International Agreement regulates plantation rubber quotas, prices, exportable percentages, and rigidly controls replanting and new planting of rubber.

GEOGRAPHICAL PUBLICATIONS

William Harrison Carter, Jr. and Richard Elwood Dodge. **Economic Geography.** 525 pages, 165 illustrations, 36 tables. Doubleday, Doran & Company, Inc., New York, 1939.

The viewpoint of the authors is that Economic Geography involves two problems: Localization of Production, and Specialization of Regions, and, that "regional differences in economic landscape and the localization of production of goods are the result of physical, economic, and institutional forces working in combination."

The organization of the book assumes that students have had little, if any, previous training in geography or economics. Therefore, Part I, Principles: Physical Factors Affecting Production (four sections, 104 pages), and Part II, Principles: Economic and Institutional Factors Affecting Production (five sections, 200 pp.), primarily are, using the expression of a colleague, "about Economic Geography."

Part III, Commodities: Production and Trade (sixteen sections, 292 pp.), considers all major commodities entering into commerce and manufacturing in appreciable amounts. These are discussed according to a general scheme which includes mainly, types, regions of production, trade regions, soil, climate, economic factors, governmental policies, and trends. A tabulated check of commodities and factors involved reveals that regions of production, climate, soil, and economic conditions are considered to be of paramount importance. The persistence of this schematic treatment will tax the ingenuity of the teacher in keeping the interest of the class aroused, and, again, as in Parts I and II, the discussions in Part III include considerable material "about Economic Geography."

The book contains valuable bibliographies. A general bibliography, following textual material, lists atlases, periodicals, general geographies, and regional geographies. At the close of each section, or closely allied sections, is a comprehensive selected bibliography listing geographical, economic, and political materials bearing upon the particular topics discussed.

A comprehensive index and some thirty-six tables, many of which are new in an economic geography, add materially to the usefulness of the text, as do also the more than one hundred maps, graphs and charts, and the sixty-five full page pictures.

Physically the book is strongly bound, the paper is of good quality and the printing and illustrations unusually well done. However, the rather wide page margins and the extra wide spacing between paragraphs gives the reader an impression of considerable "whiteness." Upon opening the book one recoils from such whiteness while seeking information in print and pictures.

SAM T. BRATTON

University of Missouri

Alison E. Aitchison: **Europe, the Great Trader.** Bobbs-Merrill Company, Indianapolis and New York, 1939. 424 pages, 120 pictures, 28 maps, 20 graphs, a list of investigations at the close of each chapter, a list of books for leisure reading, and an index with the pronunciation of difficult proper names.

This publication is an excellent geographical reader. The title itself is intriguing. Just so are the sub-topics of each chapter, for example, the chapter on Germany has the four following sub-heads: (1) Poor in Land but Rich in Products, (2) Where Farms and Mines Work Together, (3) The Busiest River in Europe, (4) The Mighty Little

Ruhr. Thruout the book the style is most interesting and direct. I feel that it is well adapted to sixth grade level.

The materials are truly characteristic of the various countries treated. A wealth of detail is given which enables the child to understand that countries, when one really learns to know them, like people, have certain characteristics—personalities, if you please. Altho not all the countries of Europe are treated, none are omitted which offer additional different geographic concepts.

This book acquaints the child with the handicaps of the natural environment in many European countries and enables him to recognize their problems. Thus the basis of international good will is laid thru a sympathetic understanding of the conditions and problems of other peoples.

The arrangement of this book is ideal for use. A map is placed near the beginning of and a list of thought-provoking questions at the close of each chapter. The author has provided many good geographic pictures and representative climatic as well as other graphs. A helpful, suggestive reading list is included and also an adequate index which gives the pronunciation of difficult proper names.

I feel that the book can be highly recommended and my hope is that many pupils and teachers may have the opportunity and pleasure of using it.

ANNA C. LARSON

State Teachers College
St. Cloud, Minnesota

Joanna C. Colcord. **Your Community: Its Provisions for Health, Education, Safety, and Welfare.** 249 pp. Russell Sage Foundation, New York, 1939. $.85.

The author does not present this volume as geography. It grew out of the modernizing, for a broader, largely lay clientele, a pamphlet for investigators, "What Social Workers Should Know About Their Own Communities." Its materials, to some extent, and its method, in perhaps somewhat greater degree, should prove valuable to geographers.

Of nineteen chapters, the first, on method of using the book, how to record, report, and use the material, probably rates most valuable. What constitutes a community? Geographers meet the same problems of delimiting areas and acquiring data for areas delimited. Procedure for procuring, mounting, and placing symbols on maps seems directed at us. The making of "pictographs" of findings and pictorial representation of statistics on charts also sounds like a phase of geography teaching.

The introduction to Chapter 2 suggests how regional setting helps determine community type. Geography teachers may well follow directions given for locating data on population, industries, and occupations.

Zoning and planning, including a planned recreation layout, lie marginal to the geographic field but this outline emphasizes non-geographic phases. Water, milk, and food supply, refuse disposal, the smoke nuisance, as well as libraries and museums, all interest us tho the author did not plan her approach primarily to fit our needs.

Finally, despite certain direct values listed above, most of the material of this little volume does not form proper grist for a geographic mill. Some may find its chief value in the contrast offered, the difference between the non-geographic approach and such a one as JOURNAL readers normally would follow.

GEO. H. PRIMMER

State Teachers College
Duluth, Minnesota

J. Fairgrieve and Ernest Young. **Visiting South America, Australia and New Zealand. Real Geography, Book I.** 103 pp. Illustrated. George Philip and Son, Ltd. London. 1939

The first of a series of six books which cover the world in three years of the elementary school. Each of the ten chapters in Book I deals with a particular place, followed by generalizations. At the end of the book is a summary showing the relation of each chapter to the whole book.

A Curtis Wilgus and Raul D' Eca. **Outline History of Latin America.** 376 pp. Illustrated. Barnes and Noble, New York. 1939. $2.00

A concisely written text affording a summary or aid for a rapid review of Latin American history. Bibliographical references include only those written in the English language. Part one deals with Colonial Latin America; Part two, with the Revolutions for Independence; and Part three, with Latin America since independence. The maps are selected from a set for a projected Atlas of Latin American History by the first-named collaborator.

Philip G. Worcester. **A Textbook of Geomorphology.** 565 pp., 375 figs. D. Van Nostrand Company, New York, 1939. $4.00

Many elementary texts and most introductory courses in geography deal too briefly with the physical basis of the science. In the training of geographers and geography teachers a basic course using Professor Worcester's *Textbook of Geomorphology* would give the student and potential teacher a sound foundation upon which to build their geographic studies, particularly in schools where the work in geography is given from the Social Science point of view.

The plan of the book is somewhat conventional and follows closely that used by older books in physiography and physical geography. The sixteen chapters cover in detail the following topics: Introduction (to earth sciences); Relief of the Earth; Relations of Earth and Sun; Materials of the Lithosphere—Elements and Minerals; Materials of the Lithosphere—Rocks; Earth Movements and Structures; Preparing the Land for Erosion—Rock Weathering; Topography Produced by Streams of Humid Regions; Topography of Semi-Arid and Desert Regions; Glaciers and Glacial Topography; Lakes and Swamps; Shore Forms and Shore Processes of Seas and Lakes; Topography Due to Ground-water; Volcanism and Volcanoes; Islands and Coral Reefs; and, Plains, Plateaus and Mountains. Each chapter is well outlined, and the use of bold face type and italics makes the text quite usable for the beginning student.

The illustrations are well chosen and in general illustrate and supplement the textual material. Of particular merit are the full page reproductions of sections of topographic maps in two colors, blue and black. One wonders, however, why the colors of the contour map were not used since the publishers allowed the extra expense of two-color printing.

For a first edition the book is remarkably free from typographical errors. Certain terminology might be improved and made clearer for the beginning student. The general use of the word *topography* for *relief* fits into its conventional usage, but would hardly be approved by James[1] and other members of the Association of American Geographers. The fine distinction between *peneplain* and *peneplane* according to degree of flatness hardly seems justifiable in an elementary text and is likely to confuse the

[1] James, Preston E., "The Terminology of Regional Description," *Annals of the Association of American Geographers*, Vol. 24, pp. 78-92.

student. The lack of distinction between the terms *cuesta* and *hogback* (p. 192) is somewhat disturbing, however, to the student living on the plains.

In conclusion the reviewer would like to emphasize again the fact that in this volume the beginning student in geography has a textbook of the principles of physiography that is both modern and readable. It should be a basic text for every student of geography.

EDWIN J. FOSCUE

Southern Methodist University

J. Fairgrieve and Ernest Young. **Real Geography.** A series of six books, approximately 112 pages each. George Philip & Son, London. ls. 10d. each book.

Real Geography, a series of six elementary books now in preparation, is designed for use in Senior schools in England. Each book is intended to be used for half an academic year. The series of six books covers the entire world in three years.

Book one, entitled "Visiting South America, Australia and New Zealand," follows the type-study approach. The style embodies references to atlas maps, exercises of questions and problems, and clever, effective use of carefully chosen photographs which profusely illustrate the book. Absence of any maps detracts considerably, and it is hoped that other books of the series will contain the simple maps essential to intelligent and effective reading.

The volume appears too brief for use without considerable supplementation. Another detraction lies in the fact that it is printed without paragraph headings or other captions. Appropriate headings should greatly enchance its usefulness, since each chapter must serve for several assignments. It is well gaged for the elementary level. Its subject matter is well chosen and its style is interesting and stimulating. The series should prove a valuable contribution to the elementary field.

J. SULLIVAN GIBSON

State Teachers College,
Livingston, Alabama

Bruce and Sheridan Fahnestock. **Stars to Windward.** 295 pp. Illustrated. Harcourt, Brace and Co., N.Y. 1938. $3.00

These youthful authors, brought up in a gifted family, carefully schooled and backed by a year of scientific preparation spent in the American Museum of Natural History, received a legacy enabling them to buy and equip a ship for a world cruise. They sail from New York, thru the Panama Canal, with stops at Galapagos, the South Sea Islands, and the East Indies. At the end of two years they reach Manila, where due to sickness and lack of funds, they sell their ship and voyage to China. There they are caught in the turmoil of the Japanese penetration of Shanghai and Peiping and are forced to return home. The narrative of what they see or what they do is never dull. Many of the people they meet are celebrities whose names have made the front pages of the newspapers.

J. G. Meyers, O. Stuart Hamer, and Lillian Grisso. **The Old World and Its Gifts.** 552 pp. Illustrated. Follett Publishing Co., Chicago. 1939. $1.96

Opening chapters furnish basic concepts of the Solar System, glacial epoch, land forms, and climate, followed by ways primitive man used earth resources. Children then visit Europe, Asia, Australia, and Africa, getting glimpses of past and present cultural developments, in their regional settings. This fusion of social studies is richly illustrated with a wide choice of photographs, drawings, and physical and political maps.